

REMARKS

This Amendment and Response is filed in reply to the Office action dated September 14, 2006. Claims 1, 6, 11 and 17 are amended and no claims are canceled. Support for the claim amendments is found at least at paragraphs [0022] and [0023] of the application. New claim 19 is added. Support for this claim is found at least at paragraph [0021] of the application. No new matter is introduced by the claim amendments or the new claim. Accordingly, after entry of this Amendment and Response, claims 1-19 are pending.

I. Claim Rejections Under 35 U.S.C. § 102

Claims 1-18 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,148,396 to Chrysos et al. (hereinafter “Chrysos”). To anticipate a claim, each and every element as set forth in the claim must be taught, either expressly or inherently, in a single reference. MPEP § 2131. The rejection of independent claims 1, 6, 11 and 17 are addressed first.

In response to the rejection, independent claims 1 and 17 are amended to include the limitation “storing information relating execution events in a history queue including at least one program counter value for a control transfer event.” Examples of control transfer events include, for example, when a control transfer instruction is determined to be taken, when an instruction flush is performed and when an instruction takes a trap. Independent claims 6 and 11 are amended to include a similar limitation. The Applicant respectfully submits that Chrysos is insufficient to anticipate the amended independent claims for at least the following reasons.

As amended, each independent claims requires storing a program counter value for a control transfer event in a history queue. Chrysos teaches the use of a profile information register to store selected information regarding an instruction selected for sampling (see *Chrysos* column 11, lines 30-32). This register or buffer stores the program counter (PC) for the selected instruction (not a control transfer event), the effective address associated with the selected instruction, events associated with the selected instruction, timing information related to the selected instruction and path related information for the selected instruction (see *Chrysos* column 11, line 56 to column 12 line 59). However, the path information stored in the path register only captures recent branch taken/not-taken information from a branch history table (see *Chrysos* column 12, lines 34-36). The branch history table only stores a few bits of the PC (see *Chrysos* column 10, lines 25-29 and figure 2B). Thus, the path taken information of Chrysos is not the program counter value for a control transfer event as required by each independent claim. Thus, for at least this reason, Chrysos does not anticipate any of the independent claims.

Further, Chrysos specifically teaches the use of N-wise sampling to statistically reconstruct a path profile (see *Chrysos* column 22, lines 9-21). Thus, the execution path determined by Chrysos is only the most likely path taken, which may or may not be true for the particular instruction sampled. In the present invention, the history queue is used to store the PCs of the most recent control transfer events (up to the size of the circular buffer of the history queue). This queue is linked to the sampling mechanism so that the queue is frozen when the sampled instruction is available. Thus, the present invention enables the execution path leading up to the sampled instruction to be reconstructed (up to the length of the queue) in one sample. Thus, for at least this additional reason, Chrysos does not anticipate any of the independent claims.

The Applicant respectfully submits that Chrysos is insufficient to anticipate independent claims 1, 6, 11 and 17 for at least the reasons stated above, believes the claims are in form for allowance, and respectfully requests such indication.

Rejected claims 2-5, 7-10, 12-16 and 18 all depend, either directly or indirectly, from one of independent claims 1, 6, 11 and 17. New claim 19 depends from independent claim 1. Accordingly, these dependent claims are themselves patentable over Chrysos for at least the reasons set forth above for the independent claims. This statement is made without reference to or waiving the independent bases of patentability within each dependent claim. The Applicant therefore respectfully requests the Examiner allow the dependent claims over Chrysos.

II. Conclusion

The Applicant thanks the Examiner for his thorough review of the application. The Applicant respectfully submits the present application, as amended, is in condition for allowance and respectfully requests the issuance of a Notice of Allowability as soon as practicable.

This Amendment is submitted contemporaneously with a petition for a one-month extension of time in accordance with 37 C.F.R. § 1.136(a) and a Request for Continued Examination. Accordingly, please charge Deposit Account No. 04-1415 in the amount of \$910.00 (\$120.00 for one-month extension of time fee and \$790.00 for Request for Continued Examination fee). The Applicant believes no further fees or petitions are required. However, if any such petitions or fees are necessary, please consider this a request therefor and authorization to charge Deposit Account No. 04-1415 accordingly.

If the Examiner should require any additional information or amendment, please contact the undersigned attorney.

Dated: 9 JAN 2007

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Gregory P. Durbin', is written over a horizontal line.

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